

## **REMARKS**

The only issues outstanding in the Office Action mailed April 13, 2009, are the rejections under 35 U.S.C. 112 and 103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

At the outset, Applicants note paragraph 4 at page 2 of the Office Action where the Examiner discusses various features which are not recited in the claims. It is noted that it is not necessary to recite unexpected results or advantages in the claims, merely the features which produce those results or advantages. [CITE}

### **Rejection Under 35 U.S.C. 112**

Claim 6 has been rejected under 35 U.S.C. 112, second paragraph. It is argued, at page 3 of the Office Action, that “shrinkage rate” should be “percent shrinkage” because the specification does not describe shrinkage rate with a rate unit, but in terms of percentage. While it is submitted that one of ordinary skill in the art would take exactly the same meaning from either term, the term has been amended in order to expedite prosecution. It is submitted that the claim scope is not changed, either literally or for purposes of the doctrine of equivalents, by this amendment. Withdrawal of the rejection is respectfully requested.

### **Rejection Under 35 U.S.C. 103**

Claims 1-5, 7 and 8 have been rejected under 35 U.S.C. 103 over Lubda, taken with Karger. Reconsideration of this rejection is respectfully requested.

At the outset, it is noted that claim 6 has not been subjected to this rejection, and has been placed in independent form.

On page 4 bridging to page 5 of the Office Action, the Examiner lists the teachings of Lubda et al. However, this discussion omits to mention the most important part of the Lubda disclosure – the necessary refilling of the column in order to produce a useable material. As disclosed in paragraph 6, monolithic sorbents shrink during production. To be able to produce monolithic sorbents, which can remain in their gellation mold, Lubda et al. suggests refilling the

mold with an additional monomer sol after performing a first sol-gel process (see paragraphs 9 or 12-18).

As a consequence, Lubda et al. teach an *alternative* way to overcome the problem also addressed in the present invention – the in-tube production of monolithic sorbents with larger diameters. Lubda solves this problem in a totally different way, by multiple fills. Karger et al. discloses the production of a capillary for gel electrophoresis. One of ordinary skill in the art knows that gels employed in electrophoresis are very flexible. Such gels are not rigid networks and could not be used for chromatographic applications. As a consequence, Karger et al. do not have any issues with shrinking, but desire their flexible gel to be fixed in the capillary. For this reason, they bond it to the capillary walls with bifunctional reagents.

Accordingly, there is absolutely no motivation to combine these two documents. The Lubda reference deals with monolithic sorbents but teaches a totally different approach to overcome the shrinking problems. Karger et al. try to fix a flexible gel to the capillary walls. In the process of Lubda et al. it is contraindicated, even impossible, to activate the surface of the gelation mold, as the void volumes resulting from the shrinkage of the sorbent must be refilled with new monomer sol. Therefore, patentees must generate void volumes that are accessible for further monomer sol. Even if only a portion of the sorbent stuck to the wall of the gelation mold, this would hinder the re-filling. As a consequence, Lubda et al. clearly teach away from the present invention.

Moreover, there are other prior art documents similar to Karger, which disclose surface activation, but no prior art documents suggest surface activation to overcome the shrinking problem in sol-gel processes. One of ordinary skill in the art would not have had any motivation to combine the documents dealing with surface activation with documents dealing with the production of monolithic sorbents “in-column”. One would not expect that surface activation would have any effect on the shrinkage rate. Accordingly, withdrawal of the rejection is respectfully requested.

Claim 6 has been rejected under 35 U.S.C. 103 over Lubda and Karger as above, and further in view of Bhandarkar ‘329. Reconsideration of this rejection is also respectfully requested.

It is submitted that Bhandarkar is being misinterpreted. The Office Action cites column 4, lines 18-39 to support the contention that patentees disclose the use of particles to reduce the percent shrinkage. This is incorrect. The examples, claims and disclosure (e.g., see column 1, lines 54-65 and column 4, lines 18-39) disclose a different procedure than that of the present invention. Bhandarkar discloses the use of a dispersion of a particular silica, and states in column 4, lines 18-38 that the use of such silica particle dispersions in a sol-gel process leads to shrinkage. Patentees teach that the use of a more concentrated dispersion reduces shrinkage, and that shrinkage could potentially be further reduced with larger particles resulting in an even more highly concentrated dispersion (column 4, lines 34-39). However, this does not suggest organoalkoxysilanes. Moreover, in Bhandarkar, the particles are activated with an alkaline treatment, but not fully dissolved and are present during the entirety of patentees process. See column 5, line 24 and 46 and column 5, line 36. In such a situation, the large particles and high concentration might potentially lead to less shrinkage compared to the use of dispersions with less particles. This does not suggest the use of alkoxy silanes which, through hydrolysis and polycondensation reduce shrinkage. For this reason, and because Bhandarkar does not remedy the above-noted deficiencies of Lubda, it is submitted that this rejection should also be withdrawn.

The claims of the application are submitted to be in condition for allowance. However, should the Examiner have any questions or comments, he is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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